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TECHNICAL REPORT 06-02

First Strike Ration Acceptability: Dismounted Combat Soldiers in Afghanistan

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November 2005

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Human subjects participated in these studies after giving their free and informed voluntary consent. Investigators adhered to AR 70-25 and USAMRMC Regulation 70-25 on the use of volunteers in research.

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EXECUTIVE SUMMARY

The First Strike Ration was developed to provide a smaller, lighter ration with eat-on-the-move properties more conducive to the way that dismounted warfighters operate during military operations. This technical report summarizes the user feedback on the acceptability of the FSR from 124 infantry, Ranger, Special Forces, as well as other than conventional forces performing patrol missions in Eastern Afghanistan. Each participant ate 1 FSR a day for 3 days during missions lasting 4-8 days. The rest of the mission, the participants consumed MREs. The FSR received very favorable ratings as 68% reported that they "like moderately" to "like extremely" and 63% reported that they would "somewhat prefer" to "strongly prefer" the FSR rather than MRE on their mission. 77% felt that the variety was sufficient for 3 days of feeding. Of the two caffeinated gum products evaluated (sugar coated tablet vs. stick forms), the participants favored the tablet form. The Warfighters also recommended insertion of an ergonomic ERGO drink reservoir over less ergonomic prototype.

INTRODUCTION

The First Strike Ration (FSR) is a special situation ration under development by the Natick Soldier Center Combat Feeding Directorate that substantially reduces the weight and cube of Soldier load, preparation time, and package waste compared to the Meals, Ready to Eat (MRE). The objective is to produce a ration that is easy to eat on-the-move, performance enhancing, and lightweight. Initial development was conducted under Defense Technical Objective HS.31/Science Technical Objective III.LG.2000.02. The output of that effort is illustrated in Figure 1. Continued development is now underway under Army Technical Objective MD.IV.2005.02 Nutritional Optimization of the First Strike Ration.

Figure 1. First Strike Ration components and size comparison relative to the Meal, Ready-to-Eat



The FSR features include: solely eat-out-of-hand components, inclusion of caffeinated gum and (in newest versions) a caffeinated carbohydrate bar (HOOAH bar), inclusion of a food wrapper waste bag, and packaging of whole day food supply in single bundle compared to packaging individual meals as does MRE. The intent of this approach is to promote snacking and regular food intake on-the-go.

Customer feedback and direction have been gathered using focus groups (1-2) and survey methods (2-4). While the early studies provided useful information regarding how to construct the ration, the FSR was not tested under conditions for which it was designed (+2 days of high tempo infantry-type missions); leaving uncertainty whether the desired functionality and performance had been achieved. In follow up studies (3-4), Soldiers and Marines working in field situations, have repeatedly given the FSR high overall ratings (6.6 to 8.0 on 9 point scale) and rated it as more convenient and desirable for FSR-type missions than MRE. Questions, remain however, about overall acceptability of the ration during actual operational missions as well as acceptability of modifications (based on earlier feedback) to certain ration items;

The purpose of this technical report is to summarize the outcomes of a FSR acceptability survey conducted during Operation Enduring Freedom by infantry-type Soldiers. The specific aim was to determine the acceptability of FSR during actual field operations as well as evaluate acceptability of two different types of collapsible drink containers and 2 forms of caffeinated gum.

METHODS

Participants were assigned to one of three units operating in Eastern Afghanistan (primarily in Paktika Province) and were performing dismounted and mounted operations. Of the 124 surveys used in the analysis, 72 were provided by light infantry Soldiers (unit 1), 46 were provided by Rangers (unit 2), 1 was from Special Operations Soldier, and 5 were from “other than conventional” force units (unit 3). The Warfighters had a mean age of 24 [4] years (range 19-39 years) and averaged 4 [4] years of military service (range 0.8 to 20 years). 58% of the participants reported being in the field 90+ days over past 12 months; 84% reported being in the field 60 or more days in past 12 months.

During the data collection period, the participants were performing 4 to 8-day missions in the mountains of Eastern Afghanistan. The light infantry Soldiers were operating between 4,000 and 8,500 feet. The other participants were operating in elevations between 3,500 and 12,250 ft. Daytime temperatures ranged from 21-32°C and nighttime temperatures varied from -2°C to ~7°C. 77% of participants reported sleeping greater than 4 h but less than 8 h/day on the mission studied. All units were provided the FSR for 3 days and consumed MREs on the remaining days of their specific missions. They completed a survey (Appendix A) that asked questions about acceptability of the FSR, specific components, as well as demographic information, upon return to the base camp.

The FSR ration menus are presented Appendix B. All Warfighters were provided one of each menu. For shorter missions, the Warfighters were provided all 3 FSR at the

beginning of their field exercise, for the largest group (and on the longest mission), the FSR was distributed daily.

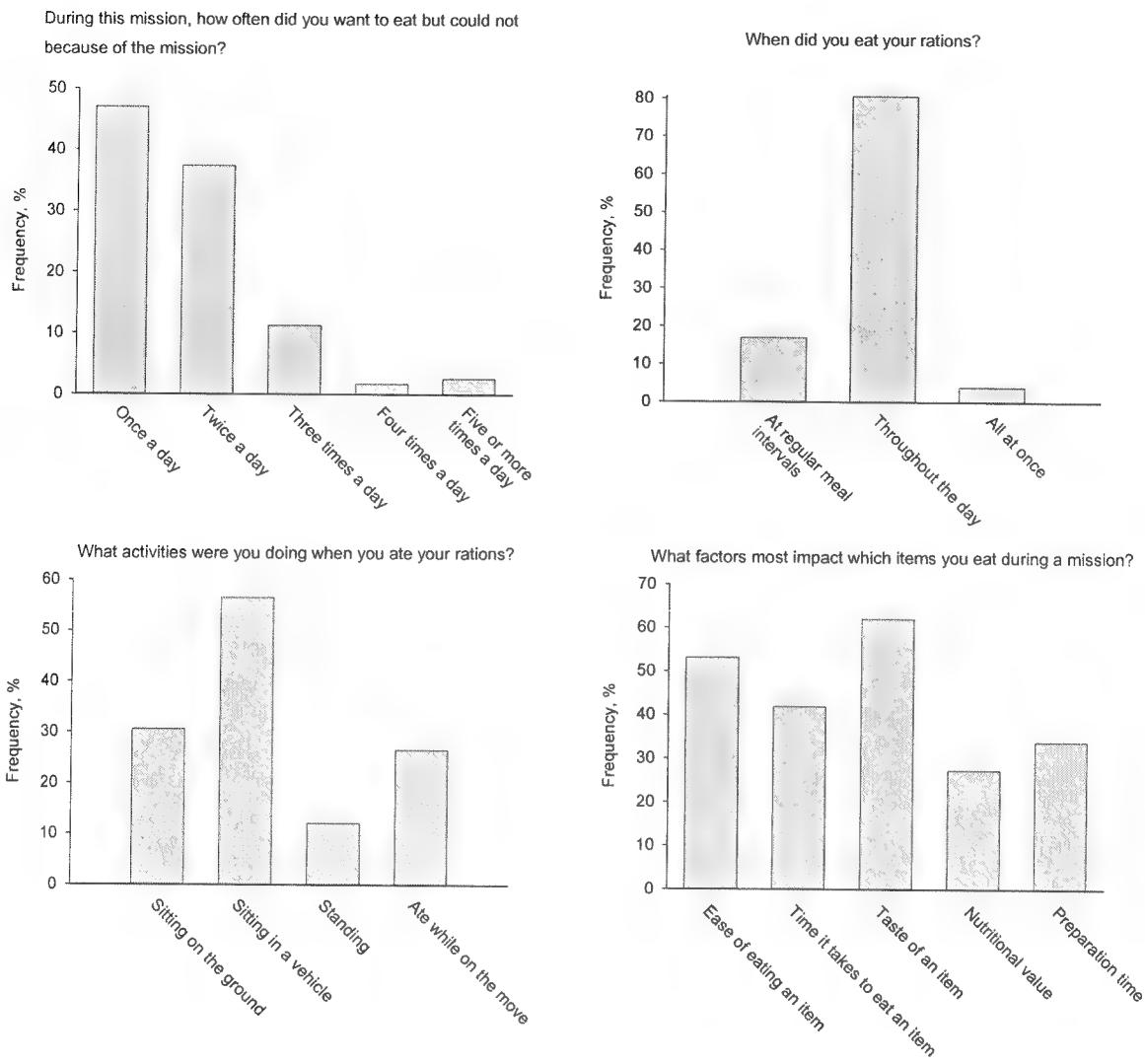
Data Analysis was performed by generating descriptive statistics as well as frequency distributions for the questions asked in the survey. Because several of the questions were open-ended, several assumptions were made in order to interpret the responses. For the item asking the number of MREs they typically consume in a 3-day mission, if the warfighters provided a range (e.g., 6-9) rather than a discrete number, the median value was used. For the item asking how many times they ate from their ration, if a number range was provided, the lower digit was used. "all day" or "continuous" were coded as "throughout the day". For gum questions, it was assumed they received 1 pack of Jolt gum (12 pieces) or 1 pack of Stay Alert gum (5 sticks) in each FSR. Thus, if they wrote that they consumed "everything" or "whole pack", it was assumed they consumed 12 or 5 pieces, respectively. If they wrote, a non-numeric response such as "a couple" it was assumed that they consumed three pieces. If a non-specific range was provided (e.g., +12), the value provided was used.

RESULTS

Mission Profile

88% of the Warfighters surveyed answered that they typically take 6 MREs for a 3-day mission. There were a number of factors that impacted on the items they selected to eat (Figure 2). However, only 2 factors were selected by greater than 50% of those surveyed. These were, "Taste of an item" (62%), and "Ease at which you can eat an item" (53%). For the mission surveyed, 81% selected that they ate their rations throughout the day as time permitted, additional 17% ate the rations at regular meal

Figure 2. Mission profile and eating behavior



intervals. They most frequently (57%) ate while sitting in a vehicle but also while sitting on the ground (31%) or while on the move (27%).

When asked if they field stripped the FSR, 30% responded "yes" (Table 1). The most frequently cited item (n=12) was the wheat bread or crackers. Next most frequently stripped item (n=10) was the tuna product. 42% consumed additional foods

or beverages while consuming the FSR (Table 2). The items varied and included many of the types of products in the FSR.

Table 1. Field Stripping of the First Strike Ration

	<i>n=</i>	<i>Frequency, %</i>
<i>Did you strip the First Strike Ration? (YES)</i>	37	29.8
<i>(The following stats are based on those that replied YES.)</i>		
Stripped chicken products	1	2.7
Stripped tuna products	10	27.0
Stripped pepperoni products	4	10.8
Stripped various Raisin/Nut train mix products	3	8.1
Stripped various spread products	7	18.9
Stripped wheat bread or crackers	12	32.4
Stripped main meals	4	10.8
Stripped various products	7	18.9
Stripped HOOAH bar products	3	8.1
Stripped gum products	3	8.1
Stripped ERGO drinks	4	10.8

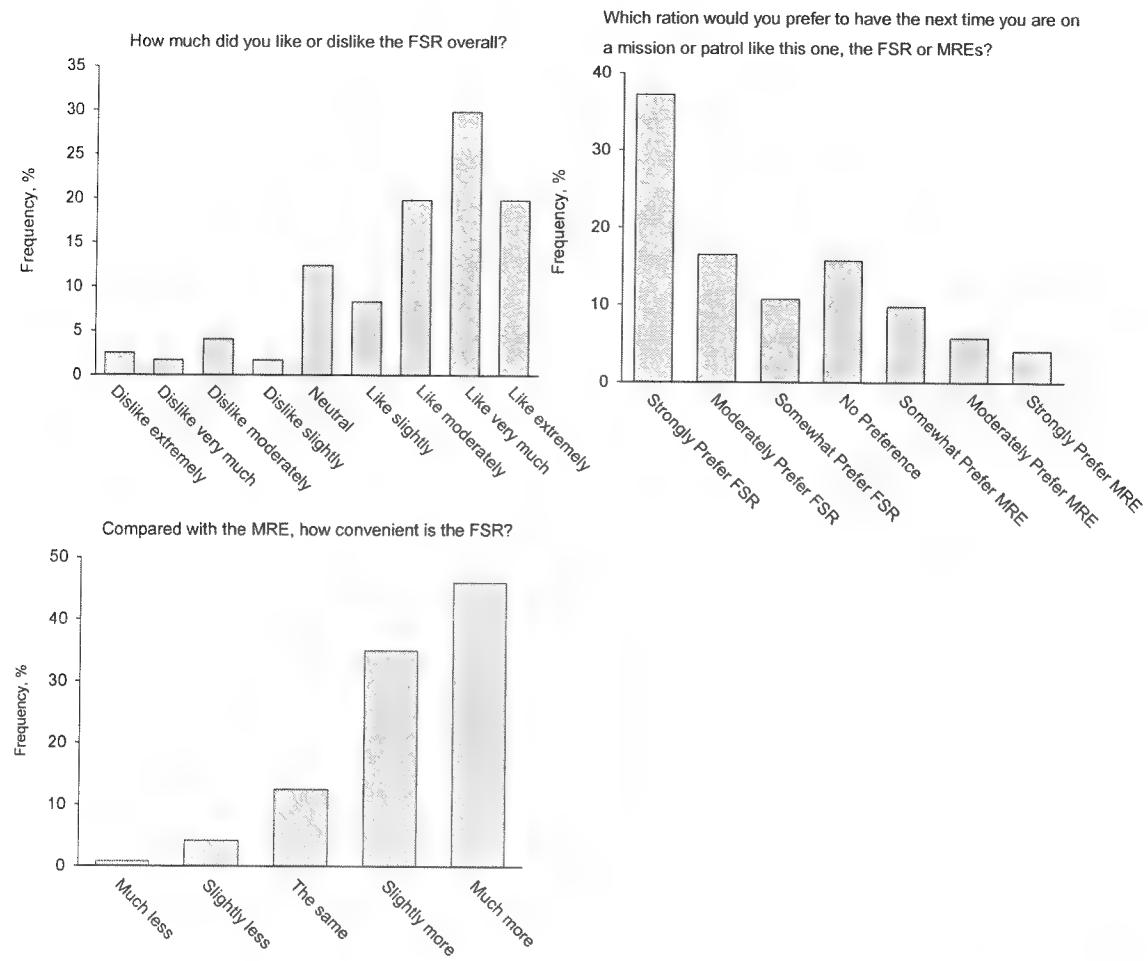
Table 2. Food in addition to First Strike Ration that was consumed during study period

	<i>n=</i>	<i>Frequency, %</i>
<i>Did you consume any additional foods or beverages that you consumed while eating the FSR?</i>	52	41.9
<i>(The following stats are based on those that replied YES.)</i>		
▪ Gatorade drinks (liquid or powder)	12	23.1
▪ MREs as pogey bait	5	9.6
▪ Coffee or Kool-Aid	9	17.3
▪ Beef Jerky	4	7.7
▪ Energy Bars	11	21.2
▪ Candy and cookies	7	13.5
▪ Nuts and nut mixes	4	7.7
▪ Other pogey bait items	20	38.5

Ration Acceptability

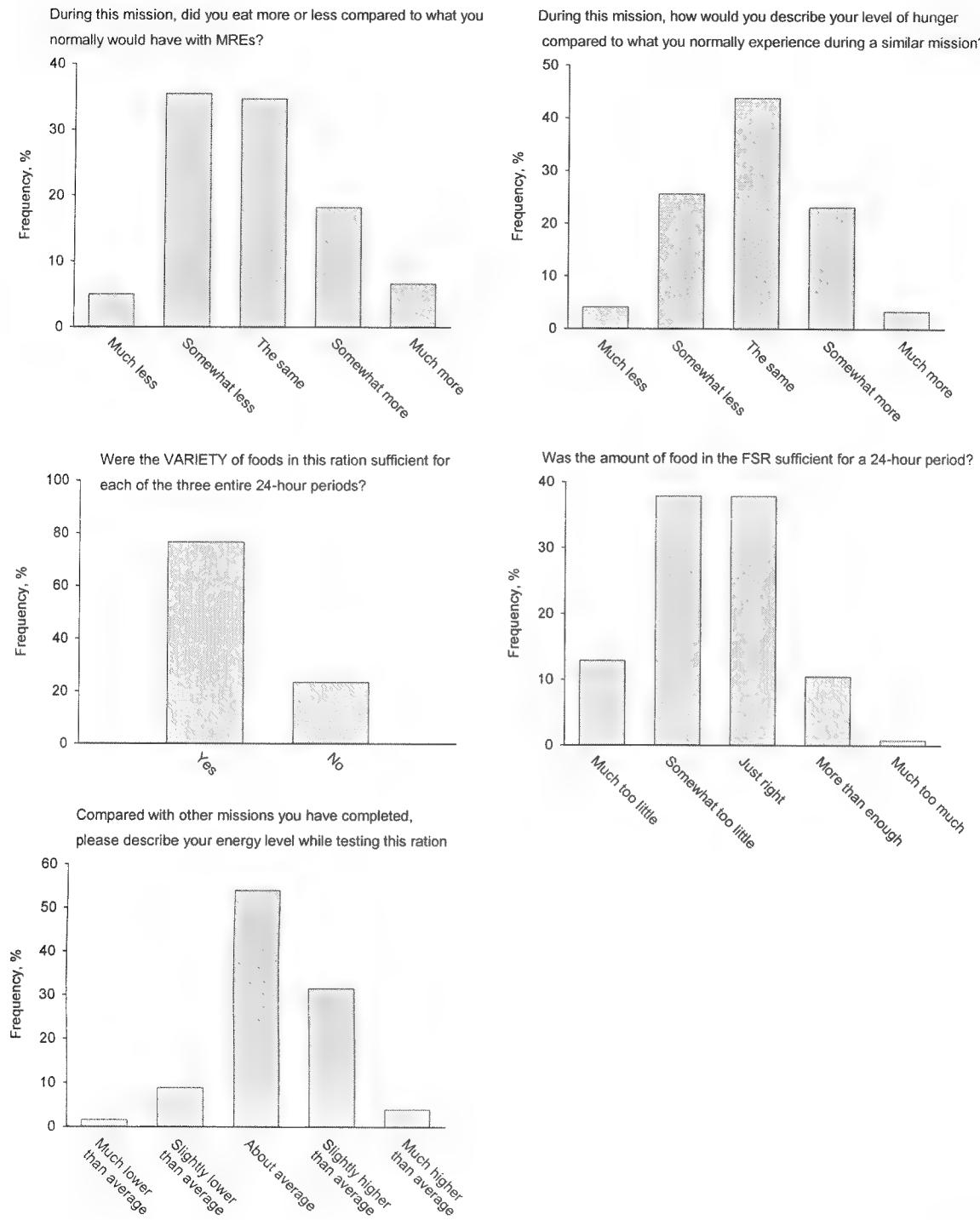
Frequency distributions for questions related to overall ration acceptability are presented in Figure 3. When the Warfighters were asked how much they liked the FSR ration overall, 68% reported “like moderately” to “like extremely”. 63% reported that they would “somewhat prefer” to “strongly prefer” the FSR rather than MRE on their mission. Only 20% preferred the MRE over FSR.

Figure 3. First Strike Ration Overall Acceptability and Comparison to MRE



The performance acceptability of the FSR is presented in Figure 4. 36% of Warfighters felt they ate somewhat less when eating FSR compared to MRE, although 35% and 15% felt they ate the same or somewhat more, respectively when consuming the FSR. Ratings of hunger appeared to be equally distributed with mean (and median) rating of "about the same". 77% felt that the variety was sufficient for 3 days of feeding. 38% felt the amount of food was "just right", while additional 38% felt the amount of food was "somewhat too little." The Warfighters rated their energy level "about average" (54%) or "slightly higher than average" (32%) compared to other missions they have completed. Less than 11% felt they had less energy compared to other missions.

Figure 4. Performance attributes of the First Strike Ration



Not all components were highly accepted. 27% of those surveyed rated certain FSR foods as unacceptable (Table 3). The most frequently cited was the tuna product

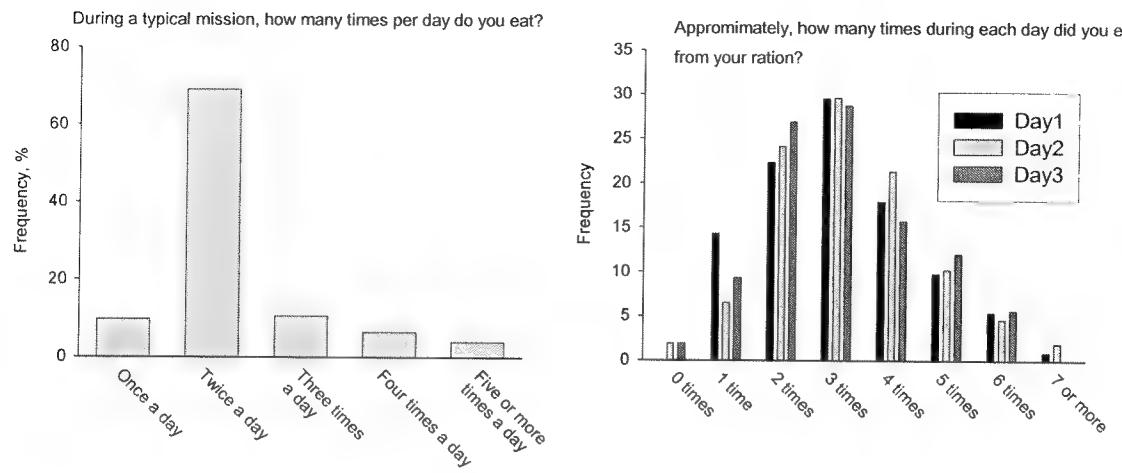
(n=12). It should be noted, however, that the negative comments regarding tuna were not reflection of the tuna item per se, but general dislike for tuna. The next most frequently cited were the pepperoni products (n=8) followed by the wheat bread or crackers (n=6). Written responses about the individual items and suggestions for improvement are provided in Appendix 3.

Table 3. First Strike Rations that were rated as unacceptable and frequency that the items were selected as unacceptable.

	<i>n=</i>	<i>Frequency</i>
<i>Did you find items in the First Strike Ration that were unacceptable? (YES)</i>	34	27.4
<i>(The following stats are based on those that replied YES.)</i>		
▪ Unacceptable chicken products	3	8.8
▪ Unacceptable tuna products	12	35.3
▪ Unacceptable pepperoni products	8	23.5
▪ Unacceptable Cheeseburger products	2	5.9
▪ Unacceptable various Raisin/Nut train mix products	4	11.8
▪ Unacceptable various spread products	5	14.7
▪ Unacceptable wheat bread or crackers	6	17.6
▪ Unacceptable various dessert products	4	11.8
▪ Unacceptable HOOAH bar products	2	5.9

The eat-on-move properties appeared to have a modest effect on eating behavior. As illustrated in Figure 5, 69% of Warfighters reported that they typically ate “twice a day.” When eating the FSR, the median scores were three times per day over the 3 days of sampling. Mission factors may have impacted on eating behavior as 47% and 37% reported that the “once a day” and “twice a day”, respectively, they wanted to eat but could not because of mission factors (see Figure 2).

Figure 5. Ability of First Strike Ration to produce snacking behavior



ERGO Drink Pouch Evaluation

The green ERGO drink pouch included an ergonomic shape to improve ability to drink from the collapsible container whereas the clear ERGO drink container did not. Figure 6 presents the frequency distributions for the ERGO drink pouch packaging acceptability. Recommendations for improving the pouches are presented in Table 5. The green pouch packaging was generally well-liked, as 55% of Warfighters surveyed rated it between "like slightly" to "like extremely" with 29% rating it "neither like or dislike." The most frequently recommended improvement was to improve mixing (n=14) followed by the recommendation to make it easier to drink from (n=9). A frequent request was the addition of a straw. The clear ERGO drink pouch received modestly lower ratings of like/dislike. Only 37% of Warfighters liked it slightly or higher, whereas 23% rated it "dislike slightly" to "dislike extremely." The most frequent recommendation (n=13) was to make it easier to drink from (including the addition of adding a straw).

Figure 6. Satisfaction with ERGO Drink Pouch packaging

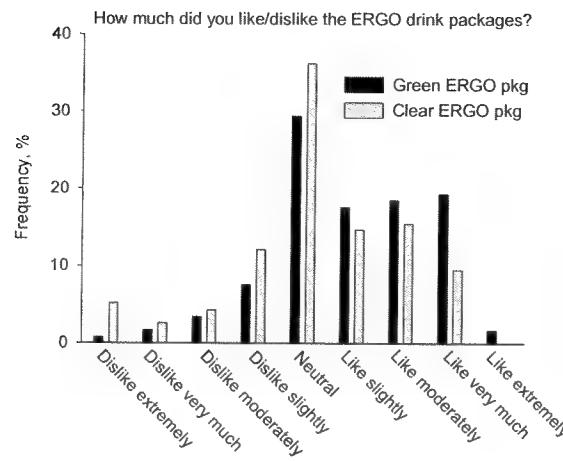


Table 4. Suggestions for improving ERGO Drink Pouch.

	n=	Frequency
<i>Recommendations for improving the Green ERGO Drink Pouch</i>	n=76	
▪ Improve mixings	14	18.4
▪ Increase durability	1	1.3
▪ Improve taste	7	9.2
▪ Vary flavors	3	3.9
▪ Make sweeter	5	6.6
▪ Make easier to drink	9	11.8
▪ Nothing	18	23.7
▪ Make bigger	2	2.6
▪ Make package see through	1	1.3
▪ Make small pour pkg instead of drinking pkg	1	1.3
▪ Make it ready-made	1	1.3
<i>Recommendations for improving the Clear ERGO Drink Pouch</i>	n=69	
▪ Improve mixing	5	7.2
▪ Increase durability	4	5.8
▪ Improve taste	4	5.8
▪ Make sweeter	2	2.9
▪ Make easier to drink	13	18.8
▪ Nothing	17	24.6
▪ Make bigger	2	2.9
▪ Make small pour pkg instead of drinking pkg	1	1.4
▪ Get rid of zip lock bag	1	1.4
▪ Make more like green pkg	3	4.3

Caffeinated Gum Evaluation.

Two different forms of caffeinated gum were provided in the FSR being evaluated. Two of the three FSR menus contained JOLT gum which is packaged in chicklet-type form with 12 pc in each package. The other FSR provided Stay Alert gum (5 sticks/package). The acceptability of the two products is presented in Figure 7. 103 of 124 (83%) responded that they tried the gum. Of those who responded that they tried the products, 12 reported that they tried only the JOLT gum and 6 reported that they tried only the Stay Alert gum. For those that consumed the JOLT gum, it appeared that many consumed the total amount provided (n=48 (50%) reporting chewing 24 or more pieces of JOLT gum). Of those who reported chewing the Stay Alert gum (n=91), 44 (48%) reported consuming 5 or more sticks during the evaluation period. Of those who consumed only JOLT gum, 50% (n=6 of 12) reported chewing several pieces of gum at one time whereas only 17% (n=1 of 6) reporting that they consumed only Stay Alert chewed several pieces of gum at one time. Of those who sampled both product, 42% (35 of 84) reported chewing more than one piece at a time. Most did not chew one piece after another (75%; n=77 of 103); but only 48% reported waiting several hours between chewing one piece of gum and the next. 79% chewed the gum when they need to stay alert. The Warfighters felt the gum slightly to moderately increased their alertness. There were several (n=3 of 12) who tried the Jolt product only that didn't feel the product improved their alertness, whereas the small sample who only tried the Stay Alert (n=7) always reported a positive effect. Whether this is real difference between the products or artifact of small sample cannot be discerned from the data. Of those

that tried both products, it appeared that more preferred JOLT to Stay Alert (33% vs. 45% with 19% citing no preference).

Figure 7. Caffeinated Gum Preference for the 84 Warfighters who tried both types of gum

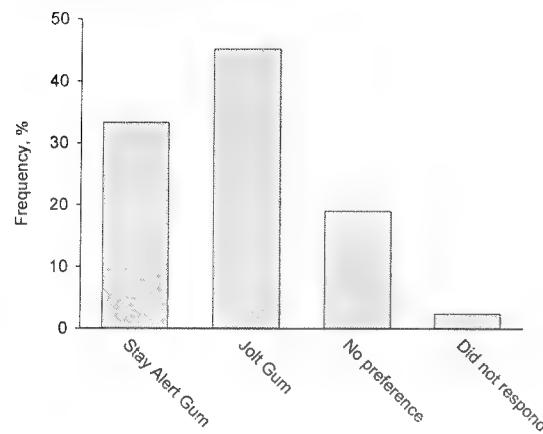
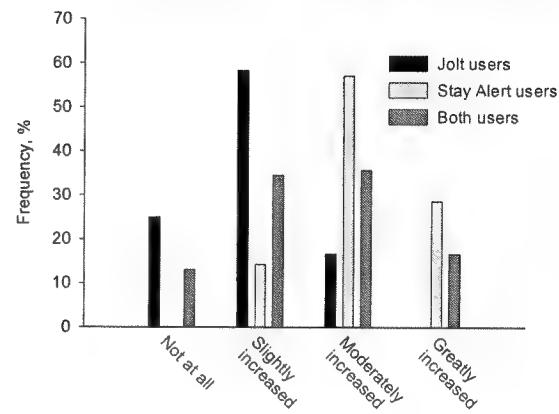


Figure 8. Subjective assessment of how effectively caffeinated gum increased alertness



DISCUSSION

The results of this evaluation demonstrate that the FSR is well-liked and that the functional characteristics of the FSR make it more acceptable for patrol missions than the MRE. 69% liked the FSR “moderately” to “extremely,” with 20% rating that they liked it “extremely.” One contributing factor was convenience of use, as 83% rated the FSR as “slightly” to “much more” convenient than the MRE. When asked which ration they would prefer the next time they were on similar type patrol, 54% “moderately” to “strongly” preferred the FSR over the MRE.

Whether this ration would improve physical performance and sustainability of Warfighters cannot be discerned from the current data. It is intriguing, however, that 33% of the participants felt that they had more energy while on FSR. Whether this

would translate into greater self-selected physical work or better cognitive performance is uncertain, but should be experimentally tested.

The positive ratings of the FSR are another demonstration of the likeability of the FSR items and this type of feeding strategy for Warfighters performing arduous labor. Warfighters in the earlier evaluations (1-4) have repeatedly provided positive support for the FSR product. The outcomes of this investigation are strikingly similar to those of the field test conducted in Grafenwoehr training area, Germany. In that investigation (4) the FSR received an overall acceptability score of 6.68 (on 9-point scale) whereas in the current investigation the FSR received an average score of 6.92. Convenience was rated 4.09 (5-point scale) whereas it received average score of 4.24 in current study. Together, these two field studies argue strongly for continued development of the FSR.

In earlier studies, the Warfighters voiced concerns regarding the energy density and/or satiety capabilities of the FSR (3-4). In current study, the Warfighters rated their hunger as similar to the hunger they feel when consuming MREs, despite rating their intake as equal or less compared to the MRE. Thus, these data don't support the hypothesis that the components in the FSR provide any less satiety than the components in the MRE.

There were several items in the ration that need additional development or consideration should be given to their use in the ration. The wheat bread or crackers and tuna products were the most frequently reported items to be field-stripped from the ration. Of those items rated as unacceptable, tuna was most frequently cited (35%). However, as mentioned in the results, the tuna products were rated as unacceptable by participants (~10% of study population) who simply do not like tuna. It is recommended

that developers consider reducing the number of FSR menus that include tuna, to maximize nutrient intake of entire Warfighter population.

The ERGO drink pouch with the indentation partway up the reservoir, to assist handling of the filled reservoir, was rated more favorably than the pouch without this feature; although both products received more favorable ratings than unfavorable. Unlike the Germany field test, where 86% of Soldiers rated the ergonomic pouch at 5 (on 9 point scale) or higher (average score = 6.5), the Warfighters in the current study rated the product less enthusiastically. Only 57% rated the pouch 5 or higher and the average score was modestly lower (average = 5.97). The two most frequently cited concerns were trouble getting the product mixed satisfactorily and ease of drinking from the pouch. One solution recommended was the addition of a straw.

It would appear from the outcomes of the caffeinated gum questions that the products were used as intended. When the Warfighters consumed the candy-coated tablet form of gum (Jolt) they generally consumed more than one piece at a time; when consuming the stick form (Stay Alert) they ate one stick at a time. The Warfighters also consumed the product when they needed to stay alert rather than chewing one piece after the other.

The gum mode of delivery was rated favorably. When the Warfighters were asked to rate if they preferred delivering the product as coffee, pill, drink, skin patch or gel, less than 50% of selected any of these alternate vehicles (coffee = 12%; pill = 37%; drink = 27%; skin patch = 18%; gel = 15%). The use of the HOOAH bar as a vehicle did receive favorable responses in earlier questionnaires and wasn't evaluated in this evaluation. However, in future tests of the ration it might be helpful to ask participants

how many times in the day they feel a bolus of caffeine might be helpful to stay alert. This would determine if best vehicle is a fast-acting minimal energy source (e.g., gum) or slower-acting, energy-dense item (e.g., HOOAH bar).

In conclusion, this study used a questionnaire to gather Warfighter's opinions of the performance of the FSR during mission execution. The outcomes reveal that that FSR is well-liked by majority of Warfighters and the eat-on-move items are preferred to MRE during arduous work.

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APPENDIX A. FIRST STRIKE RATION QUESTIONNAIRE

FIRST STRIKE RATION QUESTIONNAIRE

Last 4 Digits of SS# _____

What is your age? _____

What is your rank & MOS? _____

Approximately how many days have you been in the field during the last year? _____

How many years have you been in military service? _____

Are you currently try to lose or gain weight? (circle one)

Lose weight

Maintain weight

Gain weight

Unconcerned

Don't know

Has your weight changed as a result of this deployment? (circle one)

No, my weight is stable

Yes, I gained weight

Yes, I lost weight

Don't know

If yes, was the weight change (circle one)

Intentional

Unintentional

If yes how much did you gain or lose? _____

For a typical 3 day mission, how many MREs would you take with you? _____

Before a mission, what do you do, if anything to prepare your body (e.g. eat more, take supplements, drink more fluids etc)?

After a mission, what do you do, if anything to refuel your body (e.g. eat more, take supplements, drink more fluids etc)?

What factors most impact which items you eat during a mission? (circle all that apply)

Ease at which you can eat an item

Time it takes to eat an item

Taste of an item

Nutritional value of an item

Preparation time for an item

On average, how many hours of sleep did you get each day during this mission? _____

If you stripped any items out of these First Strike Rations prior to going on your mission, which items did you **NOT** take with you? _____

Please list any additional foods or beverages that you consumed while eating the First Strike Ration. _____

Were the **variety** of foods in this ration sufficient for each of the three entire 24-hour periods?

Yes No

Was the amount of food in the First Strike Ration sufficient for a 24-hour period? (circle one)

Much too little Somewhat too little Yes, Just right More than enough Much too much

Were there foods that you did not eat because they were unacceptable? Yes No

If yes, what were they, and why were they unacceptable?

Compared with other missions you have completed, please describe your energy level while testing this ration? (Circle one)

Much lower than average Slightly lower than average About average Slightly higher than average Much higher than average

How much did you like or dislike the **green** ERGO drink package? (circle one)

Extremely Very much Moderately Slightly Nor dislike Slightly Moderately Very much Extremely

What improvements would you suggest?

How much did you like or dislike the **clear** ERGO drink package? (circle one)

Extremely
Very much
Moderately
Slightly
Nor dislike
Slightly
Moderately
Very much
Extremely

What improvements would you suggest?

How many pieces of the **JOLT** gum did you chew during the past three days?

How many pieces of the **STAY ALERT** gum did you chew during the past three days?

Describe how and when you chewed either gum (circle all that apply):

Chewed several pieces at one time	Yes	No
Chewed one piece right after the other	Yes	No
Waited several hours between chewing one piece and the next	Yes	No
Chewed when I got up from sleeping	Yes	No
Chewed when I needed to stay alert	Yes	No

How did the gum affect your alertness? (circle one)

Not at all Slightly increased alertness Moderately increased alertness Greatly increased alertness

Which gum do you prefer? (circle one)

Stay alert No preference Jolt Didn't try the gum or N/A

Would you prefer receiving the caffeine in a form other than gum? (circle all that apply)

Coffee Pill Drink Skin patch Gel

During a typical mission, how many times per day do you eat? (circle one)

Once a day Twice a day 3 times a day 4 times a day 5 or more times a day

Approximately how many times during each day did you eat from your rations?

Day 1 _____ Day 2 _____ Day 3 _____

Approximately how much fluid (water and other beverages) did you drink each day (e.g. 6 quarts, 64 oz etc.)

Day 1 _____ Day 2 _____ Day 3 _____

Did you eat your rations (circle all that apply)

At regular meal intervals Throughout the day as time permitted All at once

What activities were you doing when you ate your rations? (choose the one that most often applied)

Sitting on the ground Sitting in a vehicle Standing Ate while on the move

During this mission, how often did you want to eat but could not because of the mission? (circle one)

Once a day Twice a day 3 times a day 4 times a day 5 or more times a day

During this mission, did you eat more or less compared to what you normally would have with MREs?

Much less Somewhat less The same Somewhat more Much more

During this mission, how would you describe your level of hunger compared to what you normally experience during similar missions? (circle one)

Much less Somewhat less The same Somewhat more Much more

Compared with the MRE, how convenient is the First Strike Ration? (circle one)

Much less
convenient

Slightly less
convenient

The same

Slightly more
convenient

Much more
convenient

How did the weight of the First Strike Ration compare to the total weight of the items you typically take on a mission or patrol? (circle one)

Much less

Somewhat less

The same

Somewhat more

Much more

How much did you like or dislike the First Strike Ration overall? (circle one)

Dislike Dislike Dislike Dislike Neither Like Like Like Like Like
Extremely Very much Moderately Slightly Nor dislike Slightly Moderately Very much Extremely

Which ration would you prefer to have the next time you are on a mission or patrol like this one, the First Strike Ration, or MREs? (circle one)

Strongly Moderately Somewhat No Somewhat Moderately Strongly
Prefer FSR Prefer FSR Prefer FSR Preference Prefer MREs Prefer MREs Prefer MREs

How many days could you sustain on the FSR if you had nothing else to eat?

How many days could you sustain on the FSR if you had an additional one MRE per day?

Please use the remaining space below or the back for any additional comments:

APPENDIX B. FIRST STRIKE RATION MENUS

MENU 1 CONTENTS:	CALORIES
(2) Shelf Stable Pocket Sandwich	
Bacon Cheddar	313
Chicken BBQ	303
(1) Lemon Pepper Tuna Fish (3oz)	135
(1) Shelf Stable Tortillas (2/pouch)	210
(1) Cheese Spread (jalapeno)	170
(1) Wheat Snack Bread	180
(1) ERGO Drink (2 per pouch)	320
(2) Mini HOOAH Bars (AC & Mocha)	300
(1) Dessert Bar (Peanut Butter)	230
(1) Beef Jerky (Teriyaki; 2/ pouch)	240
(1) Zapplesauce	110
(1) Trail Mix	330
(1) Pack Stay Alert Gum	
(1) Accessory Packet	
(1) Zip-Lock	
(1) Wet Nap	
TOTAL	2841

Menu 2 Contents:	Calories
(1) Shelf Stable Bagel	260
(1) Shelf Stable Pocket Sandwich - Italian	300
(1) Tuna Salad (3oz)	91
(1) Shelf Stable Tortillas (2/pouch)	210
(1) Peanut Butter	260
(1) Cracker, Plain	170
(2) ERGO Drink	320
(2) Mini HOOAH Bars (Mocha & CR)	300
(1) Dessert Bar (Banana Nut)	240
(1) Beef Jerky ((Spicy) (2 per pouch))	120
(1) MRE Nut Raisin Mix	310
(1) Zapplesauce	110
(1) Pack JOLT Gum	
(1) Accessory Packet	
(1) Zip-Lock	
(1) Wet Nap	
TOTAL	2691

Menu 3 Contents:	Calories
(1) Shelf Stable French Toast	380
(1) Shelf Stable Pocket Sandwich - Pepperoni	303
(1) Lemon Pepper Tuna Fish (5oz)	225
(1) Shelf Stable Tortillas (2/pouch)	210
(1) Cheese Spread (plain)	170
(1) Cracker, Plain	180
(2) ERGO Drink	320
(2) Mini HOOAH Bars (Choc & Mocha)	300
(1) Dessert Bar (Peanut Butter)	230
(1) Beef Jerky Pouch (Teriyaki; 2/ pouch)	240
(1) Zapplesauce	110
(1) Trail Mix	330
(1) Pack JOLT Gum	
(1) Accessory Packet	
(1) Zip-Lock	
(1) Wet Nap	
TOTAL	2998

APPENDIX C: WRITTEN COMMENTS ON FIRST STRIKE RATION

Taste like preservatives and sodium

They taste better than MREs

I feel that the FSR has a good variety of goods. But to me quantity is more of an issue. The FSR does not have a sufficient amount of food to be satisfying along with the FSR. At had 5 complete hot meals at camp Carson and additional 5 MREs both between FSR

I thought the food was very good. However, they need to be package in a better container. I also think that there is too much emphasis on caffeine.

Take out the tuna salad. Keep the lemon pepper. Cheese in every meal. Pepperoni sandwich isn't good, not filling or tasty. Tabasco for the tuna. Made put something with sugar in if like candy. Flavored bagel like blueberry

The first strike was converent & better , but I just dislike the tuna & the chicken sandwiches sauce. The pepperoni sandwich could use cheese too.

Put an additional sandwich in each ration

Good main meals except for the pepperoni sausage sandwich. Ergo needs a better taste. 3 meals compact into one package great . Larger dessert bars portion. Add shredded beef and ham

I didn't like the FSR because it didn't give enough fuel to sustain someone who works as hard as we do. I was extremely hungry at night after consuming entire FRS's

Need less "dessert" foods like HOOAH bars and have more sandwiches

Good job on the contents of the ration

Cheese spread sucks, pork sucks even more, GI's don't care about nutritional value, all that matter is the taste. If some items don't taste at least decent they won't be eaten at all and that's?" than eating something that isn't as nutritious but taste go

Overall, I thought the FSR was good as taste but did not fill me up. It was more like a bunch of snacks

The taste of the food out standing the quality not enough, especially due to someone allergic to tuna fish.

I thought the FSR was a very good meal overall

It was nice not having to use any type of plastic ware to eat of the ration. Have whole days worth of food one package

Make barbecue chicken bigger, instead of tuna put shredded ham or turkey

Something more filling

These rations are great

Less tuna , pocket sandwich could taste better - bacon / French toast were awesome. Beef jerky was good.

More food

For vegetarians we had nothing additional to eat and lost too many calories. Nothing else to eat , no choices

I really like the first strike, it could use same things one mustard for tuna plus tuna selection. Cheese in the pepperoni pocket a spoon for the tuna all the food was really good the packaging made it easy for me to get to and eat while I was up in the gu

If you could make a way to heat up the pockets. When it is cold something hot is always good. Noise cheese and crackers. Fast and easy and will usually hold you over until you actually have time to eat.

Replace cheese with peanut butter every once in a while. The calorie count was sufficient but there could be more food to give solider a fuller filling. Replace tuna with other meat products every once in a while. Felt better while on the move them with MRE

I didn't like the taste of the jolt gum, wasn't worth the benefit. I think the FSR should replace the MRE. Very easy to use, compared to healing MREs

Very reliable meal. Level of carbs greatly "?" range on dismounted missions. Needs mayo with tuna

I enjoyed the FSR. It was more convenient than a MRE and also tasted better.

Like taste of jolt gum, "?" effect of stay alert gum possibly add utensil to get all tuna from packet

The FSR was a lot better than an MRE you didn't feel grossy and tired after you eat it. I felt more energetic. I endorse the use greatly. Some of the MRE items like crackers/ cheese could be replaced with something that doesn't give an MRE appearance, but over all I like the variety!

1. It needs a spoon/ 2.needs an additional coffee pocket/ 3. An itemized supplement feet would be nice reading % of U.S.RDA/ 4. The zip lock bag included should be clear so it can be used to waterproof maps, radio, GPS, documents...ect.

FSR didn't make me feel bloated or sluggish. FSR needs few more components

Would like more menu choices, the sandwich pockets/ zapple sauce /desert bars were the best MRE choice I have ever had

Keep the tuna . It's a great source for needs of the body. I saw those who did not like the tuna trade it for other items. get rid of the pepperoni sandwich, it's garbage. The other sandwiches were great. I think 2 sandwiches per ration is sufficient for ou

Excellent meal choice; saves much-needed space in vehicles during extended OPS room/weight in rucksacks on extended patrols-overall package was good; would look for chicken substitute for tuna on at least one day. ERGO drinks good; difficult to drink. include spoon

Get rid of the tuna I can't eat it so that was three meals that I lost. Need more barbecue chicken. Also get rid of the lemon-lime drink change the flavor. Get rid of the pepperoni stick bread

I like being able to snack throughout the day. Put some of the items in my cargo pocket and move out

Was very pleased with FSR

The zapple sauce in a much , much better package. Able to consume quickly without utensils. A spoon is needed for the tuna. Something like a small wooden spoon like ice cream ones. The clear package is much better but would be greatly improved if it took

Pat some condiments with tuna fish replace tuna with maybe chicken salad or some other meal

Get rid of the brown zip lock bag-when you unpack the first strike and put it in the zip lock, it nearly double in size. Instead make the actual packaging of the first strike re-sealable

Less tuna please !

Cheddar bacon awesome. pepperoni didn't taste very good. Great idea for being on the move + little time (easy ride going out drink) ergo

Loose the pepperoni sandwich, make something similar to bacon cheddar, maybe ham and cheese

I absolutely loved the bread in the sandwiches. It was "?" compared to the wheat snack bread. It was soft which I didn't think possible for various. The pepperoni snack sandwich was a big no-go. It would have been better to have sliced pepperoni, because I thought the food was good, most of it was pretty good. The amount of food was enough but it was hard to get filled up on them if I spread it out over the whole day. I think they could be improved if a kind of main meal item was put into them. It seemed I thought that it was a great idea + the pocket sandwiches were surprisingly good, but not everyone likes tuna. I really felt burnt out the next day. I didn't like starving myself all day b/c I didn't want to run out of food. I personally had rather eat a

Package should be somehow resealable so it will last the whole day instead of making it easy to rip and having to "?" all the individual package of food

I hate peanut. Trail mix is okay, but put more raisins or something in there. Wheat snack bread is horrible also that shelf stable bread is 100x better. That pepperoni sandwich thing sucked too. Put ketchups, mustard, BBQ sauce, pepper salt and other sh